

RIGID DRESSING

This application claims the benefit of Provisional Patent Application Serial No. 60/417,556, filed October 11, 2002.

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

The present invention pertains to a wound dressing, and more particularly to a rigid dressing for a residual limb immediately after surgical amputation of a limb.

2. Background of the Invention

10 Postoperative treatment of a residual limb after surgical amputation is conducted to ensure primary wound healing and pain control, reduce edema and assist in proper residual limb formation. Conventional postoperative treatment involves soft dressings of sterile gauze and padding followed by a compressive bandage of elastic wrap. These dressings suffer from the
15 disadvantages in that the elastic wrap can generate high pressure on the residual limb and the dressing is cumbersome to remove when inspection of the wound is required.

 An alternative technique is to provide a rigid dressing wherein a nonremovable rigid plaster dressing is applied to the residual limb immediately
20 after limb removal. Although the plaster dressing immobilizes the residual limb, it suffers from several significant disadvantages. Significant disadvantages to this postoperative dressing include the fact that it requires substantial time and skill to apply the plaster dressing. Another disadvantage is that inspection of the residual limb cannot be conducted without breaking
25 and removing the plaster casting from the limb.

 The present invention overcomes the disadvantages of the prior art by providing a rigid wound dressing which is easily configured to enclose a residual limb immediately after surgical amputation while firmly securing the residual limb and permitting easy inspection of the residual limb without
30 destruction of the dressing.

SUMMARY OF THE INVENTION

According to one embodiment of the present invention, there is provided a sealed casing containing an compactable filler material disposed in the interior thereof, with the casing formed of a flexible, air impermeable material that is configured and dimensioned to accommodate a body member. The invention includes an appropriate arrangement permitting communication with the interior of the casing for evacuating air therefrom, whereupon the filler material interengages, in the aggregate, to form a rigid structure conforming to the body member. The sealed casing is divided into portions which are connected to one another but which can be flexed at predetermined points or areas relative to a central portion of the wound dressing after interengagement of the filler material. A pad is connected to the central portion to accommodate a distal end of a body member.

Significant aspects and features of the present invention include a wound dressing capable of being formed into a rigid structure which enables for ease of application to and inspection of the body member. Particularly, the flexible nature and inherent shape of the casing permit portions of the rigid dressing to be flexed and therefore removed from the body member for inspection of the body member without destruction of the dressing.

Another significant aspect and feature of the present invention is a wound dressing which provides for rigid securement of a body member which is easily and quickly performed while providing comfort and safety to the body member.

Although described in the context of securing a residual limb immediately after surgical amputation of a limb, the present invention is not intended to be limited to the securement of residual limbs. Instead, the present invention is directed to any application where securement and inspection of a body member is necessitated in a simple and quick fashion.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the sealed casing of the present invention.

FIG. 1A is a cross-sectional view taken along line I-I in FIG. 1.

FIG. 2 is a plan view showing the interior of the sealed casing.

5 FIG. 3 is a perspective view showing the sealed casing.

FIG. 4 is a perspective view showing the wound dressing in an extended configuration.

FIG. 5 is a perspective view showing a body member positioned along the wound dressing.

10 FIG. 6 is a perspective view showing the wound dressing connected to a vacuum device and folded over portions of the body member prior to evacuation of air from the interior of the sealed casing.

FIG. 7 is a perspective view showing the wound dressing after evacuation of air from the interior of the sealed casing.

15 FIG. 8 is a perspective view showing the wound dressing opened for inspection of the body member.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates a plan view of a sealed casing 10 made of a flexible, air impermeable sheet material such as a polymer coated textile or polymer film and defining an interior volume 11. The casing 10 may be formed of two adjoining sheets 10a and 10b, for example, as shown in FIG. 1a, and is divided into opposing elongated longitudinal portions 24, 24', opposing central lateral portions 26, 26' and a central portion 28 positioned between the longitudinal portions 24, 24' and lateral portions 26, 26'. A valve 16 is positioned along one of the longitudinal portions 24, 24' and arranged to communicate with the interior of the casing. Any device or arrangement suitable for providing sealable access to the interior of the casing could be used in place of the valve

20

25

16.

Disposed in the interior of the casing 10 is a filler material 17 that interengages, in the aggregate, to form the casing 10 into a rigid structure conforming to a body member when air is evacuated from the sealed casing 10 via the valve 16. The filler material 17 (FIG. 1a) includes particles within a predetermined size range which is compressible or incompressible when compacted. The particles may include beads, grains, powder or organic material that can be arranged to interengage upon evacuation of air from the sealed vacuum. Specific types of filler material 17 may include thermoplastic and thermoset materials, both foam and solid, and sand.

FIG. 2 illustrates the interior of the casing 10 without the filler material 17 and shows the division 12 of the longitudinal portions 24, 24' from the lateral portions 26, 26' and the central portion 28. The division 12 may be a crease formed by the casing 10 or a webbing separating the portions of the casing 10. In effect, the division 12 can consist of any arrangement that permits the casing 10 to be divided into portions which are connected to one another but can be flexed around a central portion 28 both before and after interengagement of the filler material 17.

The casing 10 includes a pad 14 positioned at the central portion 28 and is either secured onto or integrated into the casing 10. The pad 14 is configured and dimensioned to accommodate the distal end of a body member. The pad 14 can include hook and loop fasteners or other fastening elements (not shown) disposed on one side thereof that correspond to hook and loop fasteners or fastening elements (not shown) positioned on the central portion 28 of the casing 10 so that the pad 14 can be removed and replaced if necessary.

FIG. 3 is a perspective view of the casing 10 with straps 18 connected to longitudinal portion 24. The straps 18 include connection elements (not shown) disposed at the ends thereof such as hook and loop patches, buckles or snap elements which connect to opposing ends of respective straps 18.

While the illustrated shape of the casing 10 is not to be construed as limiting of the present invention, the gist of the present invention is a sealed casing containing a filler material 17 that is configured and dimensioned to easily enclose a body member. For example, the casing 10 may comprise the shape of a circle or a rectangle that include foldable portions to enclose a body member.

A method for applying the wound dressing to a body member is exemplified in FIGS. 4-6. FIG. 4 shows a first step wherein the casing 10 is placed along a substantially flat surface in an extended configuration so that the filler material 17 is evenly distributed in the casing 10. FIG. 5 shows the next step wherein a body member 60 is positioned onto longitudinal portion 24. FIG. 6 shows the following step wherein the longitudinal portion 24' is folded to enclose the body member 60. Also shown is lateral portion 26 which is tucked under longitudinal portion 24' to also enclose the body member 60. Although not shown, it follows that lateral portion 26' is also tucked under the folded longitudinal portion 24'. The straps 18 are wrapped around longitudinal portions 24, 24' to thereby secure the casing 10 to the body member 60.

The next step is also shown in FIG.6 which is to connect a vacuum device 20 to the valve 16 via a tube 22. Vacuum device 20 is used to perform the step of evacuating air from the interior of the casing 10.

FIG. 7 shows a rigid casing 10 after air has been evacuated from the interior of the casing 10 and the filler material 17 has interengaged. The casing 10 conforms to the shape of the body member 60.

FIG. 8 shows the rigid casing 10 opened for inspection of the body member 60 whereby the straps 18 are unsecured and longitudinal portion 24' and lateral portions 26, 26' are folded away from the body member 60.

The specific embodiments of the invention described herein are intended to be illustrative only and various modifications thereto may be envisioned and implemented by a person skilled in the art without departing from the spirit and scope of the invention which is defined in the claims that follow.